

Chittenden (J. W.)

From the Fourth Annual Report of the State Board of Health of Wisconsin.

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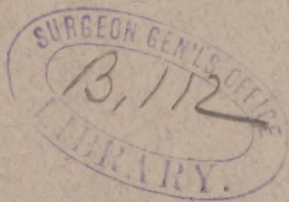
## OUR SCHOOL HOUSES.

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BY PROF. T. W. CHITTENDEN,  
OF APPLETON.

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DAVID ATWOOD, State Printer.





# OUR SCHOOL HOUSES.

BY PROF. T. W. CHITTENDEN, of APPLETON.



In a paper written for the third annual report of the State Board of Health, we used the following language: "If the state should appoint a competent inspector to examine and report upon the sanitary condition of our schools and their surroundings, a state of things would be revealed disgraceful in the extreme to any civilized community." During the past year something has been done toward obtaining such a knowledge of the actual condition of our schools, and the information gathered is, we regret to say, of a character to justify fully the above quoted words.

We wrote them, and we write the account that follows, in no spirit of hostility to the public schools of Wisconsin, for we believe that one of the first duties of the state to her children is to insure to them a sound education. Long and careful observation has shown us, however, that such an education is often obtained at too great a cost; no fact is better established, than that body and mind act and re-act upon each other, and that if the body be permanently injured for the sake of developing the mind, the ultimate profit of the transaction is more than doubtful. "What can Hercules himself do in a race if he have only a rotten boat?"

We recognize fully the fact that to obtain an education the child must be subjected to a certain amount of restraint; that interference with what may be called natural conditions is, to a great extent, inevitable. For instance, the confinement to the same place for one, two, three or more hours each day, the demands made on sight, attention, etc., the enforced silence and quiet of the school-room, are all unnatural, but are all nevertheless necessary condi-



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tions to giving and receiving an education, and we do not look for the dispensing with any of them. What is demanded is that none of them shall be carried so far as to be permanently or even temporarily injurious. We have the right, too, to ask that the buildings in which our children are taught shall have nothing in themselves or their surroundings which shall tend to impair the health and vigor of their occupants; that they shall be so constructed as to admit pure air freely, while yet they shall be comfortably warmed; that light shall be sufficient in their various apartments, while the sight shall not suffer either from its excess or from its faulty distribution; that school sites shall be dry and elevated; that sufficient provision for all natural wants shall be made; in short, that the development of a sound body shall receive as much care as that of a sound mind; that the fact shall be recognized, and not only recognized, but acted upon, that a strong and healthy body will add greatly to the value of a well trained mind.

Within the past year the State Board of Health has been in correspondence with teachers and school superintendents throughout the state, with the view of obtaining authentic information concerning the sanitary condition of school houses and their surroundings. The means adapted to reach this end are elsewhere detailed, and we here present some few of the facts reported. To those who read carefully the statements made, it will be no matter of surprise that much illness and suffering should occur among the children who attend many of our public schools; with buildings in which on single sanitary precaution seems to have been taken, which stand on wet, swampy ground, which are wholly unventilated, insufficiently warmed, badly lighted and poorly furnished, with the utter disregard even of common decency shown in by far too many cases in out-door arrangements, no sanitarian will fail to see many causes of ill health among children, which to careless and superficial observation would seem inscrutably mysterious.

We regret that the space at our disposal will not admit of even a full synopsis of the reports in our hands; several hundred had been received at the time when this paper was begun, and many more have been added to the number since then. But the material here presented shows most conclusively that very many of our

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school houses stand in need of a thorough reformation in almost every respect which concerns the health of their occupants, and that there are very few which could not be improved in these same regards.

Examining about six hundred of the reports hitherto received, which represent school buildings of every grade in all parts of the state, and considering first the subject of their

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we find that in no less than *one hundred and thirty cases* out of the six hundred, or nearly twenty-two per cent., the first essential condition of a dry and elevated situation has been wholly disregarded, and the school house has been placed in a position utterly unfit for any building intended for the occupancy of human beings. That this language is none too strong, the following descriptions, taken almost at random, will testify:

“Soil, a red clay almost impervious to water; in wet seasons the grounds are constantly covered with water.—Site quite damp at all times; in spring and fall, water remains on the surface around the house; also for several days after a rain storm.—Surrounded on all sides by marshes on which water constantly stands; school house thirty feet only from the marsh.—Low ground, near a marsh and two ponds.—A marsh with stagnant water all around.—Close by the Wisconsin river; the ground at the foot of the knoll on which the school house stands is often overflowed, hence miasma prevails.—Soil clay; a marsh close by.—A marsh and stagnant pond, which becomes offensive in late summer, within twenty rods.—

A creek at the rear, which frequently covers one-third of the school-yard with water.—Water stands on part of the school-yard for days, and sometimes weeks together.—Soil cold and wet; *was* a swamp; is now filled up with sawdust, which is two or three feet deep on the surface; one hundred and fifty feet distant from the school house is a stagnant pool, while at twenty rods distance is a low tract, neither of which can be drained, and never destitute of filthy water.—Soil clay; surrounded by low marshy ground.—Marshes all around; school house stands in the middle of a marsh.—Basement holds water, hence throat difficulties prevail among the



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children. — Soil a black clay; holds water well. — School house stands in a swamp with stagnant water all around. — Soil a low, heavy muck. — Water lies on the surface the whole time except in very dry seasons. — Whenever it rains a pond is formed near the school house, which remains until it is removed by evaporation. — Low, wet ground, filled up with sawdust.

Such are some of the locations described, and accounts like these might be greatly multiplied. Nor are there wanting descriptions of undesirable surroundings of various kinds; surroundings not only of a character wholly incompatible with the quiet desirable for a school room, but dangerous to health and even to life. We quote a few descriptions of these:

“A bayou from the Mississippi river comes near the building; this bayou is a stagnant pool at low water, and is, moreover, *the cesspool into which the sewage of the city is poured*; it is very offensive in warm weather. — Four or five rods to the south of the school stands a cheese factory, the owner of which keeps a large drove of hogs; the odor from these animals is fully enjoyed by the occupants of the school, whenever the wind blows from any southerly quarter. — Site too near the railroad.” The site, however, which probably surpasses any other in its assemblage of its undesirable surroundings, is thus described: “A frog-pond lies on the west; a hog-yard on the east; on the south side the railroad runs close to the fence, and a cemetery is just across the road on the north!” Comment on such a description is wholly needless, as are also any more extended quotations for the purpose of establishing the position that greater care than is exercised in many instances, should be had in selecting a site for a school house.

In our former paper we said that the

#### SCHOOL YARD

or play ground should have an area of not less than forty superficial feet for each pupil; that it was desirable to have the boys' and girls' yards separate from each other, and also to have a space devoted to the use of the smallest scholars. With very few exceptions the area named is much exceeded; in a large number of reports such answers as these are given: “Play ground not en-

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closed; area unlimited.—Play ground extends over the whole region round about the school.—The limits of the play ground are those within which the bell can be heard.” And of those who make more definite statements, very few indeed give a smaller area per scholar than one hundred square feet. In a single instance only, however, is there any separation of the sexes, and in none is any part of the play ground reported as being set apart for the enjoyment of the little ones. Very many reports contain such statements as these: “Play ground covered with brush; fences badly out of repair.—Play ground open; but a small portion cleared, and that obstructed by the wood piles to a great extent.—Play ground decorated with old roots, stumps and saw-logs.—Covered with log heaps and similar rubbish.” A very few report no play ground at all, but these constitute the rare exceptions.

There would seem to be no good and sufficient reason why every school house in Wisconsin should not be provided with a play-ground not only sufficient in size but neatly and substantially enclosed and attractive in appearance. Some few localities there are which report that the play-grounds are well fenced, sodded, and provided with shade trees, but those are in the majority who have not yet seen the advantages, both physical and moral, arising from well-kept surroundings. In this particular the teachers of the state can do much toward an improved condition of things; from them must come the impulse which shall tend to place the surroundings of Wisconsin school-houses on a level with those found in the older states.

It will be no matter of surprise, after reading what has been said of many localities, that little, if any, attention is paid to the matter of

DRAINAGE.

In a very large number of cases, the question relating to this important subject is answered by saying that none is needed, and this is said in some instances where the site is reported as being damp or wet. It is greatly to be feared that the importance of securing dry sites for any buildings intended to be occupied daily, is not generally recognized.

In a few answers in which the site was said to be drained, further



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inquiry developed the fact that reference was had to natural drainage only, the school house being built upon a knoll or side hill, so that the elevation of the land was deemed sufficient to secure all necessary facilities for carrying off water. We might add many many quotations showing the need that exists for thorough drainage in many localities, but space will not admit. Citations already made in regard to situations will suffice for the purpose.

CELLARS AND AIR SPACES.

By far too many buildings are reported as being placed directly upon the ground, with neither cellar or air space under them. In a very large proportion, moreover, of those which have air spaces, no means whatever is provided by which these may be ventilated.

One feature of Wisconsin school houses there is which is commendable. Very few rooms are to be found in public school buildings anywhere in the state to which the sunshine has not free access for several hours each day. Complaint is more often made that there are no means of excluding it than that it is wholly shut out. True, there are one or two rooms of which it is said that "the sunlight hardly ever gets into them," but these are rare exceptions.

HEIGHT OF BUILDINGS.

Time did not admit of an exhaustive comparison of all the reports upon this point, and accordingly those from twenty counties situated in all parts of the state were selected, as probably affording a fair representation of the whole. The result was as follows: Eighty-seven and one third per cent. of all the school houses in the selected counties are structures of one story only; eleven and three-fourths per cent. are two story buildings, and less than one per cent. are edifices of three or more stories, nearly all of the last two classes being found, of course, in the larger cities. This is as it should be; the only use that a building over two stories in height can serve, in a great majority of cases, is that of ministering to local vanity, while the injury which results from the too frequent climbing of stairs far outweighs any benefit, even if this be real.

Inquiry into the size of the buildings, with reference to their cubic capacity, reveals a much less satisfactory condition of things.



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The number of cubic feet demanded *per capita* by our best sanitarians is not less than two hundred and fifty, and with this allowance the whole of the air in the room should be replaced by a fresh and pure supply at least once in every fifteen minutes. Concerning the existing facilities for ventilation, we shall have more to say hereafter; in this place we have to call attention to the fact that only about twenty-five and one-half per cent. of all the school rooms of the counties selected as representative, allow the cubic space above mentioned to each pupil, while no less than forty-six and eight-tenths per cent., or very nearly one-half, allow less than two hundred cubic feet *per capita*, the amount in some few cases being less than fifty cubic feet. Seven and one-half per cent only allow four hundred cubic feet or more of space to each pupil, while no more than nineteen and one-third per cent. in all give the allowance called for by very many sanitary authorities, of three hundred cubic feet or more *per capita*. In rooms of the dimensions of far too many described in the reports in our hands, good ventilation is an impossible thing, and this would be the case even if the best available means for removing foul and introducing fresh air were employed. What, then, can be expected when doors and windows are depended on as the sole means? And when, still worse, not even these are available, we cannot wonder that many children suffer in health; we are rather tempted to ask how it is that so many escape injury.

## VENTILATION.

Upon the subject of ventilation we have so great a mass of testimony that the question what to exclude becomes an important one. We will not enter here upon the trite subject of the capacity of the lungs, how many barrels or hogsheads of fresh air should be allowed per minute or per hour, etc., etc., nor shall we discuss the relative merits of various systems of ventilation, great as these are, especially in the eyes of their several inventors. "The system of ventilation which will work automatically or without supervision, has yet to be devised. In other words, it takes *brains* as well as machinery to ventilate a house."\* But where the means for ventilation that should be found in the poorest structure are wanting,

\* Dr. D. F. Lincoln.

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even brains will fail; and that this lack is only too frequent, let the following extracts show: "When I took charge of the school, at first the room was closely ceiled overhead and *the windows were all nailed fast*; later, two boards were removed from the ceiling and the windows so arranged that they might be opened from the top, but the ventilation is still very unsatisfactory; danger to health arises from draughts from the windows, and from the door, which opens directly into the outer air.

Ventilated through broken windows; satisfactory in fine weather, but compels teacher and pupils to migrate frequently at other times. — Windows firmly nailed down; ventilation is supposed to be effected by means of a tube three inches square running up from the ceiling of the main room through the roof; in summer, when the doors can be left open, we can manage to breathe, but in winter, when they must be closed, it is very hard work. — Ventilated only by broken windows. — Ventilator on top of the school house, but out of repair, and closed up. — There are four windows, each with a single sash containing six small panes of glass, and all so fastened as to be immovable; need I describe the *ventilation* further? — No intentional means of ventilation; the room is aired through the cracks over and around the windows, knot holes in the floor, and similar openings. — Abundance of air admitted through crevices caused by shrinkage of weather boards, etc., and openings left by falling plaster; not satisfactory. — Ventilated in theory by a tube four inches square, directly over the stove; in practice, by the cracks and crevices around the doors and windows. — Ventilated by means of a series of semi-circular openings made by ground squirrels and gophers for their own private entrances and exits whenever *they* attend school; system always in operation, and more than sufficient, especially in cold weather. — Too well ventilated for health or comfort, by means of cracks in the unseasoned flooring, weather boarding, etc. — Walls and floor form one vast ventilator; not a satisfactory one, however. — No means of ventilation whatever; windows, three in number, cannot be opened."

Some idea of the extent to which defective ventilation prevails may be found from the fact that nearly one-half of those who



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answer the question, how physical conditions may be improved, reply, "by better ventilation;" and further, that only *twenty-three out of six hundred* declare that the ventilation of their school-houses is satisfactory. And in this connection we quote the following extracts from reports made by city and county superintendents concerning the schools under their jurisdictions: Our school houses generally have only such ventilation as can be attained through doors and windows; but, from the rude construction and poor carpenter work of many of them, there is a constant supply of fresh air in cold weather, though it is not generally well distributed.—Our school houses are ventilated only through doors and windows, except, indeed, the log houses, which are generally the best ventilated, or, rather, the most airy; some are ventilated through the wood box, which opens from the outside and inside of the school room; as this box is often the receptacle for the sweepings of the room, odds and ends from the remnants of lunch, etc., the air that passes through it can hardly be of the best and purest.—Ventilation only by windows; some school-houses have only the door.

We consider the ventilation of our high school building perfect, but more than half our school houses have no other provision for ventilation than doors and windows. In several a recess is formed by an entry projecting on either side, and directly in front of this recess a stove is placed; these rooms are ventilated by opening the windows in the recesses, so that the ingress of fresh air must pass the stove before reaching the pupils, and by lowering windows on the side opposite the wind; the air in all rooms is changed during each intermission. But when all is done these rooms are illy ventilated; in cold days the children live in vitiated air or are subjected to draughts."

This last quotation is from the superintendent of one of the most important cities of the state—a city in which probably more attention is given to the sanitary conditions of the schools than in almost any other of equal size in the country.

We may summarize the information given on the question of ventilation in our public schools, by saying that in no less than eighty-two per cent. the doors and windows form the only means of

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admitting fresh air; the remainder either are silent upon the subject or report that some form of ventilating apparatus, more or less effective -- usually rather less than more -- is employed. Of all who reply to the question: Is the system of ventilation satisfactory? more than seventy-eight per cent. answer in the negative; a very small number, about two per cent., that it is partially so, and the remainder, rather more than nineteen per cent., respond affirmatively.

It is worth noting that some of the patented systems of ventilation, which certainly seem good in theory, do not meet with much favor in practice. Several of these systems are reported as being in use in various parts of the state, the comment being very generally added that they are not satisfactory in their working -- a comment which gives force to Dr. Lincoln's remark, previously quoted.

Closely connected with the subject of ventilation is that of proper

#### HEATING APPARATUS.

This should be made a powerful assistant in supplying a sufficient quantity of fresh warm air, but in very few school rooms does it render any aid whatever in this direction. In by far the larger majority of cases, the school room is heated by a box stove, or one equally primitive in design, which is placed at one end of the apartment, usually near the teacher's seat; the chimney is at the opposite extremity, and a pipe extends through the length of the room, in greater or less proximity to the heads of the pupils. Of the advantages of this system, let those speak who are fully competent to do so. -- The stove pipe passes directly over the heads of many of the scholars at an insufficient height; headaches are frequent from this cause; the lower part of the room is always wretchedly cold. -- A box stove placed near one end of the room gives a great though not altogether pleasant variety to the temperature in different parts of the room; pupils removed from the room are uncomfortably cool; those near it as uncomfortably warm; teachers and scholars suffer from cold feet, and severe colds are often contracted. -- When the school is full, it is impossible to keep the room warm and the air sufficiently pure at the same time. -- In coldest weather a red hot stove is needed to counterbalance draughts and



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keep the room hardly fairly warm.—The floor is constantly cold and a dangerous draught comes on the heads of the pupils when windows are opened above.—I hope to see the day when stoves shall be banished from every school, study and recitation room in the land; they are the breeders of more ills than a swamp.”

More than ninety three per cent. of all the school houses reported upon are warmed by stoves; four and one-fourth per cent. are heated by furnaces, and no information is given concerning the means of warming the remainder.

It is undoubtedly true that stoves form the most convenient means of heating school houses in the large majority of cases, though they are far from being the most economical. In very many districts probably the only practicable arrangement for warming the school house is to place a stove of sufficient size in each room; a very simple apparatus, however, may be easily arranged which shall render the stove a powerful adjunct to proper ventilation. Such an apparatus is employed in several schools in the city of Fond du Lac; a fresh air duct is led into the school room, which terminates under the stove; the stove is surrounded by a sheet iron jacket perforated with holes in such a manner as to insure the perfect distribution of the air which is detained in contact with the stove sufficiently long to become warm without being burned. A device very similar in character is in use in the schools in Arcadia and Galesville, in Trempealeau county, where also a foul air flue is placed in the chimney. In another town, air tubes are led from the upper part of the windows to a drum which surmounts the stove, through which the air is compelled to pass. In many cases a large stove might be placed in a chamber under the school room; a proper air trunk should lead the fresh outer air into this chamber whence, by means of one or more registers it could be distributed to the rooms above. Any one of these simple and inexpensive methods would be a vast improvement on the present system.

By no means secondary in importance to any other point of school construction, is that of the

## ARRANGEMENT OF LIGHT,

in which school houses are conspicuously faulty. We refer not to

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Wisconsin school houses particularly in this respect, for we believe that an inquiry similar to that of which the results are here recorded undertaken in almost any other state of the Union, would develop an equally bad, and in very many sections a far worse state of things in every particular subject of investigation. As evidence of the truth of this opinion, we may refer to the reports of the committee on school hygiene of the New York State Medical Society recorded in many volumes of its transactions; to the reports of the Massachusetts State Board of Health, and many other similar sources of information. All this, however, does not mend matters as far as Wisconsin is concerned, or render it any less an imperative duty to inaugurate a reform.

The difficulty does not appear to lie generally in any deficiency of light, although instances of this are not wanting, so much as in faulty distribution. The large majority of school rooms, embracing over seventy-six per cent. of the reports examined, have window surfaces which range from one-half to one-tenth the area of the floor, by far the larger proportion reporting from one-sixth to one-eighth. There are, however, too many dark rooms — over ten per cent. reporting the superficies of glass in the windows at less than one-tenth of the floor surface, some giving the following extraordinary figures: one-fifteenth, one-sixteenth, one-twentieth, one-thirtieth, one-fifty-sixth, one-sixty-seventh, and even one-ninetyeth! It is very difficult to believe that some of these are correctly reported.

Apart from the amount of light is the method of its distribution; greater injury to the sight may be done by too much light than by too little. By far the greater number of our school houses receive light from both sides, and not a few from in front of the pupils as well. In too many moreover the blackboards are placed between the windows, in favor of which position nothing whatever can be said; scarcely better, if at all, is the arrangement often found in which the blackboard extends not only across one end of the room, but on either side as far as the first window, so that the pupil who stands in front of either of the wings occupies a position such that he receives the light from the one window nearly full in his eyes, while his shadow is thrown upon the blackboard from the other!



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To such faulty arrangements as these, and to others equally bad under which a large amount of study must be performed, is due the injury to eye sight referred to by so many teachers in schools of all grades. To the question, does sight often suffer, three hundred and twenty eight out of six hundred return an answer; one hundred and thirteen return in the affirmative without any qualification whatever, sixty-three give a qualified yes, five are doubtful, sixty-nine answer no, but with some reservation, and *sixty-eight only answer unreservedly in the negative.* We subjoin a few of the answers.

In this school sight has suffered in an unusual degree; I think from long experience that it generally does suffer from school work. — Several have received injury from which they will not recover without careful attention. — Sight has suffered very much here. — Sight suffers very often; pupils leave school on that account. — Sight often suffers; our school rooms are seldom properly lighted. — Very often see weak eyes from over study. — Suffers very often, especially in the younger pupils. — Suffers very often and very much. — It must and does suffer in a majority of cases. — Sight must suffer whenever light comes from both sides, as in the case here. — Sight suffers in many cases where the windows are unprovided with screens, or other means of regulating the light. — I find more defective sight than I had supposed possible; have thought that examination work on the blackboard taxes the sight unduly. (In this school the blackboards are between the windows.) — Sight suffers to a greater or less extent in all our schools. — There is a decided tendency to weakness of sight here; perhaps five west windows, all of them unscreened, may have something to do with producing it. — Pupils often become near-sighted. — Sight unquestionably suffers very often." Very many answer simply "yes," without any additional remark; in almost every instance where this is the case, examination shows that the room is lighted in some injudicious manner — as, for example, right and left hand and front, front and rear, all around, etc.

We may note one or two remarkable exceptions to the general run of the answers received; one says that the sight does not suffer except from want of use; a second who has never known sight

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to suffer, describes the room as having only two small windows, one on each side; a third reports that the school holds its sessions in a basement which is dark and damp, where the blackboards are placed between the windows, which are on three sides of the apartment, but that sight has never suffered, notwithstanding these adverse conditions. In these and other similar cases there is either some fault of observation, or else a special Providence watches over the sight of the fortunate pupils. We believe, however, that we have said enough to show conclusively that the danger is great of serious and lasting injury to the sight of very many of the children in our public schools, and that it is none too soon to apply a remedy.

#### SCHOOL ROOM FURNITURE.

In discussing the various circumstances which affect favorably or unfavorably the health of children at school, the arrangement and form of seats and desks must not be overlooked. Great as is the advance in the furnishing of our school rooms in many particulars within the last ten or fifteen years, we have not yet reached perfection in this matter; comparatively few of the many patterns of desks and seats to be found in use in our school houses even approach the decently comfortable. In furnishing a school room one of two courses is usually followed; the services of the carpenter or builder are called into requisition, and certain instruments of torture are constructed out of pine boards, upon which the children of the district are made to do penance for a given number of hours each day, or competition is invited from various large manufacturing establishments, and the establishment which engages to do the work for the least money obtains a contract; in this latter case the school room is provided with the greatest possible number of zebra-like arrangements in light and dark colored woods, and the board of education and the citizens vie with each other in expressing their wonder at the great improvement made in school room fittings since their own school days.

In neither case is the question asked, "What is the relation of the curves of these seats to those of the human body?" Nor is any attention paid to the facts that children of various ages and sizes are to occupy these seats, and that very much of the ease or diffi-



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culty with which a school room is controlled is dependent upon the physical comfort or discomfort of the pupils. With regard to the furniture actually in use in many schools in Wisconsin to-day, the testimony from many teachers and superintendents is full and explicit. We quote: "Seats vary in height, the lowest being twelve inches, the highest eighteen inches; old-fashioned, seat and desk united; made of pine lumber, by an ordinary carpenter.—Seats old-fashioned, uniform in height.—Seats vary, but the desks are all of the same height.—Desks are all of uniform height; about fifteen pupils out of twenty-six, when sitting squarely on the benches, *cannot touch the floor with their toes*.—Seats nearly all of different heights, but clumsy, awkward, straight-backed, and hard to sit upon; some of the desks are so high that the scholars' chins are just upon a level with them, when seated; unfit to sit at, to study at, or to write upon.—Seats uniform in height and inconvenience.—Uniform in height, though not *accurately* so.—Seats and desks very inferior; seats very high and desks very low.—Seats vary in height, but are constructed upon the old monastery chapel plan, and tip up if any one becomes sleepy, inattentive, or fails from any reason to give his mind to the preservation of his balance.—Seats vary in height, but none are low enough to allow the smallest scholars to rest their feet upon the floor.—*Seats* are uniform in height, all allowance being made in the varying height of the desks.—The seats are all graded to the size of the pupils, but the mode's for many of them were probably borrowed from some of the implements of the Spanish Inquisition.—Seats and desks are of rough pine, are uniform in height, and the desks are placed so far away from the seats as to render it very difficult to write at them.—No allowance is made in height of seats and desks for varying size; the seats are all fourteen inches high, the desks all twenty-eight inches.\*—The height of the seats, which is the same all through the school, was selected with such singular ingenuity that the smaller scholars can just touch the floor with their toes, when seated, while the seats are all too low for the larger ones, so that they are miraculously uncomfortable all round.—

\* A desk at which an adult can write with comfort, is not more than one foot higher than an ordinary chair.

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The seats vary considerably in height, ranging from one foot ten inches to two feet, seven! — Sixteen seats, and in winter fifty-six pupils. — Seats genuine antiques; all of the same height and from five to seven feet long. — School seats and desks in this town are an *abomination*. — *Two seats* are provided which are somewhat lower than the rest; hardly sufficient to accommodate the whole number of little ones. — Desks and seats are alike, and, like the building, made of rough boards roughly nailed together — such, in short, as might have been found in a log school house fifty years ago. — The seats were made to accommodate grown people, who use the building for church purposes, and are all of the same height. — There are neither seats nor desks, nothing but a few rough benches. — Seats are uniform in height, and very illy proportioned at that, being sixteen inches from the seat to the floor, and ten inches wide; distance from the front edge of the desk to the floor, thirty-four inches; the desks are all so high that my largest scholars when seated at them cannot rest their arms upon them without raising the shoulders.”

We might continue these quotations indefinitely, but have probably offered evidence enough to show that in the matter of furnishing our schools there is ample room for improvement. Some, however, may say: “Admitting the truth of all that has been said, and supposing that it applies to every school in Wisconsin — what of it? Has it any permanent effect upon the health of our children, and if so, what is the effect, and how far does it extend?” We may quote in answer from papers published in Germany, where the question has been thoroughly investigated within a very recent period.

“Almost ninety per cent. of all the spinal distortions which come under the physicians’ notice begin during the years of attendance at school, and since their character corresponds exactly with the position occupied in writing, we are justified in regarding the school as the place where the disease originates.”\* Other observers† concur in this view, and give figures which place the conclusion beyond all reasonable doubt. But not only is spinal distortion

\* Fahnner on “The Child and the School Desk.”

† Guillaume, Eulenberg, Kloppeh, Knorr, and others.

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a consequence of ill-suited desks and seats; pulmonary disease often results from the same cause. In very many cases where the desks are too low for the seats, a position is assumed, almost inevitably, in which the chest is contracted, the free play of the lungs prevented, and the foundation thus laid for disease of the most formidable character.

Even though nothing of this kind resulted, the daily and hourly repeated discomfort, the more than discomfort—in some cases the absolute torture inflicted upon the unlucky youngsters who are compelled to occupy the badly modelled and worse constructed seats too often to be found in our school houses, would be a sufficient reason for demanding a change. Many parents will testify that the weekly reports brought home by their children, while showing fairly high averages in the various studies pursued, almost constantly bear low marks in what is called “deportment.” If the teacher be asked for an explanation some such reply as this will be given: “He is fidgety, restless; it seems impossible for him to be quiet.” It not only seems, it *is* impossible; let any one try the experiment of sitting even for one half hour upon a seat such as many a school house can show, and he will feel no further wonder at the child’s inability to remain quiet. Provide reasonably comfortable seats, and the teacher’s labor in controlling the school room will be greatly lightened in very many cases. The greatness of the need of an improvement in this respect is indicated by the fact, that in answer to the question, what can be done to improve the physical condition of children in our schools, no less than seventy-five teachers reply in substance, “Give them better and more comfortable seats and desks,” more than one adding the wish—to which many will say amen—that “those who made, and those who are instrumental in keeping in use the present styles, might be compelled to occupy them.”

A defect found in almost every school house in the state, is the bad arrangement or the total absence of

#### HAT AND CLOAK CLOSETS.

In by far the larger proportion of our schools none whatever are to be found, rather more than eleven per cent. only reporting that



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they are provided; in a little over twenty per cent. the entries are made to do duty as cloak rooms, and in the remainder there is no provision whatever made. Even in the few buildings which are furnished with closets, the accommodations are incomplete; scarcely one reports any means of warming them other than by the scanty amount of heat that can be spared from the main school room, and very seldom is there any proper method of ventilation. Diagrams of some of the most costly, and presumably the best school houses in Wisconsin, show that too often the cloak rooms are sandwiched in between the main halls and the school rooms, without light or ventilation, except such as can be obtained by means of small transom windows over the doors which lead into entry and room respectively.

Instead of a well lighted and thoroughly ventilated room of sufficient size, provided with at least twice as many hard-wood pegs as there are scholars (these being placed at a proper distance from each other, and sufficiently low to be reached by those for whose use they are intended), and furnished with low seats to enable children to put on overshoes with a reasonable degree of comfort, having an independent register, or other source of heat, so that damp or wet outdoor wraps may be dried during the school hours, proper racks for umbrellas, and similar conveniences, we find either a dark, unventilated hole, sometimes under the stairways, sometimes in the position already described, with a few cast iron hooks scattered here and there around the walls, the greater part having been broken off from time to time, and never replaced; upon these the larger or stronger can hang shawl, overcoat and water-proof, and perhaps also hat or cap; while the majority, of smaller stature, have liberty to deposit the outdoor wrappings on the floor; or nails are driven into the window casings or walls of the school room, on which may be hung the hats and cloaks of a few fortunate ones, while those of the remainder find room in the desks, or oftener do duty in softening the asperities of the hard, ill contrived benches through the hours of study. If the day be wet, happy are they who can dispose of their outdoor garments around the stove; the rest must use the heat of their own bodies to dry their wrappers, or put them on at the close of the session unchanged as to condition

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except that the dampness is more equally disposed than when they were taken off. *We have not a single school building in the state of Wisconsin in which any provision for drying wet clothing in bad weather is reported.*

"Often," says one report, "both teachers and scholars are obliged to remain in wet or damp clothing until it is dried by the heat of the body; even if a fire be kindled in the school room, but few can avail themselves of it at one time, and the rest must suffer; in many cases, moreover, it is not practicable to have a fire started at such times." Several others say, in substance, that comfort and health would be greatly promoted "by adopting some means which will render it unnecessary for children to pass the greater part of the school day with wet, cold feet, and damp garments, whenever the weather is bad." The need is so obvious that the wonder is that it should be so generally neglected.

We now approach probably the most dangerous defect of our school accommodations, and the one of which it is most difficult to speak at once with the directness and plainness which its importance demands, and without transgressing the limits of propriety. The results of this deficiency are far-reaching; not only are the very foundations of physical health sapped, but that modesty and purity of mind and thought, which are far from being the least of the virtues of childhood, are undermined and destroyed. We speak of

#### OUT-DOOR ACCOMMODATIONS.

"It has been well said by distinguished authority, that the true test of a nation's civilization is to be found not in the splendor of its public buildings, but in the neatness of its privies. Not only for immediate health and comfort is it right that in these respects the arrangements at school should be faultless, but as a part of the hygienic and æsthetic culture of the rising generation it is no less so. If the children for years are trained in barbarism, how will it ever be possible to correct the evil habits transmitted from the past? If, on the other hand, they are accustomed to neat, cleanly and comfortable conveniences, they become in due time efficient aids in sanitary progress." \*

\* Dr. J. B. Lindsley in Rept. of B. of H., Nashville, Tenn.

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A dignitary of the Episcopal church has drawn a picture which will faithfully represent the condition of things in many a school district in Wisconsin to-day. "As one travels through the rural districts," he writes, "certain things are everywhere met with that are revolting to delicacy and offensive to the senses of a civilized man. Neat school houses are seen all along the roads, attended by boys and girls together; but there is often no retiring place for either sex, or else there are two small sheds situated in open view, not fenced off or concealed in any way. The scholar who would step aside is exposed to the observation of the other scholars and of the passers by; the houses are neglected and filthy.

Just here begins a child's education in other things than the spelling book. He becomes familiarized with an immodest publicity, and reconciled to unwholesome sights and smells. I remember once to have officiated in a new school house, pleasantly built and shaded, on which the neighbors prided themselves; but there were no accommodations of the kind referred to, and the region behind the house was simply disgusting. Having opportunity later in the day to converse with some of the trustees, I suggested how easy it would be to fence off the corners of the yard and make decent and suitable provision, and I waxed somewhat eloquent in urging the value of teaching children early, modest and delicate ways. When I had finished, the great man of the neighborhood replied that it was hardly worth while because, said he, "*the children is young!*"

More than seven per cent. of the schools whose reports are considered in this paper, have no privy accommodations of any kind, *while boys and girls, promiscuously, are compelled to make use of the same apartment in no less than twenty per cent.* For such a state of things there is absolutely no excuse; it is disgraceful in the extreme to any civilized community, and, if no other means will effect a cure, it should be reached by stringent legislation. No school district should participate in the distribution of state moneys unless good and sufficient privy accommodations for each sex were provided, in the proportion of at least one privy seat and one urinal stall for each twenty boys, and one proper seat for each twelve girls resident in the district, and, what is too often neglected, provision should be made for the full enforcement of the



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law; such measures would do away with this foul reproach to our people in a single year.

Even where some approach to adequate provision is made, proper privacy is too often found wanting. Fifty-eight per cent. of the reports say that the privies are unscreened from weather and from observation. Many a modest and delicate child will suffer as long as possible all the tortures consequent on unrelieved bowels and bladder, rather than enter one of these exposed structures, and the injury done in this way is beyond belief by those who have not examined the matter. Neither is this the full extent of the harm done: when the natural shrinking from observation is overcome, as it must perforce be in time, then comes the injury resulting from exposure to cold, in buildings so entirely too open to be fit for use in cold and stormy weather. — Offering little protection from the weather, and in winter generally filled with drifted snow. — Unprotected by any means from the weather, and after a storm too damp and wet to be fit for use. — With cracks in the walls wide enough to allow a great deal of snow to drive in during a storm, thus rendering them extremely uncomfortable, and giving rise to dangerous exposure." We forbear giving further quotations, although such descriptions are abundant; probably there are few of our readers who cannot match the above from their own personal knowledge.

How can modesty be preserved in structures which are "open and facing the road, close to which they stand.— Wholly exposed to public view.— In full view from the road and from the school house windows?" Yet worse are } districts of which it is said: "There are no privies and never have been; all fare alike in the brush.— The woods around serve as a very poor substitute.— The exposure is shameful," with which conclusion all must agree. Such accounts are by no means the worst that we have received, but they are quite enough to indicate the need of a reform.

Even in cases where comparatively good buildings are found, neglect is still chargeable upon some one in the failure to pay due attention to cleanliness. "They are unspeakably filthy, and a disgrace to the place," says one, and others bear similar testimony. "It is only ten steps from the school house and is unfit to enter.—

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Smells horribly.—Their condition baffles description.” Were it not for the fact that such scourges fall alike on the innocent and the guilty, we could almost hope that some pestilence might appear in some of these districts and drive their inhabitants to better things; this has already happened in one locality with the result thus recorded. “Just now the privies are kept very clean; malignant diphtheria prevailing in the village.” Only some fearful lesson like this seems to be heeded in too many places.

Insufficient accommodation is too often reported, and in localities where we should look for better things. A few instances are subjoined: “A structure three by six feet, in one apartment only, for forty pupils; no screen, no proper care for cleanliness, and no provision for needs of little ones.—Privy five feet by nine, for one hundred and eighty-three pupils.—We have two hundred and fifteen pupils in daily attendance, but our privy is only six feet by fifteen.—The privy measures six by ten feet outside, and we have three hundred and twenty pupils!”

Very seldom is any provision made for the needs of the younger pupils. Thirteen per cent. only report that any such provision is made at all, and a very large proportion of this small number add, that it is very inadequate.

Disgusting as these revelations are, we have not yet reached the end of them. We learn of privies placed so near the main buildings, that whatever care might be given them they would still be nuisances. “Twelve feet from the school house; generally neglected and odor disagreeable. — Eight feet from the main building; no care taken to keep them dry, clean or comfortable. — Six feet from the school house; both in full view of the road. — *About one foot from the wall of the school house*, and so offensive that in warm weather the windows cannot be opened.” Privies fifteen, sixteen and twenty feet distant from the main building are quite too common to call for any special notice, nor are instances very rare in which the privy is built upon higher ground than the school house, with no vault at all, or with “a few shovelfuls of earth turned up as an apology for a vault.” Neither are those very exceptional which are in dangerous proximity to wells or other sources of water supply.

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Lest we should fail to give what limited share of credit is due we quote from some of the reports received in which some redeeming features are described. From Baraboo we have this satisfactory description: "A two story brick building thirty feet in the rear of the main school house, with which it is connected by covered ways; it is thoroughly cleaned at least once a year, and kept comfortable at all times; raised platforms or foot stools are provided for the younger pupils." In one or two places a modification of the earth system is in use. "Large wooden drawers that can be taken out from the rear of the building serve in place of vaults," says one; and another, in which it is almost the only commendable thing described, says: "There is no vault, but a large drawer is provided, which is removed and cleaned at least twice in each term." No good reason can be urged why some such plan should not be generally adopted, nor can there be any reason for the toleration of many such abominations as those described, to say nothing of others with an account of which we have not ventured to astound the reader. Far less can there be any reason why both sexes should be compelled to use the same apartment, or why all alike should be forced to violate their innate sense of decency and outrage all modesty by repairing to such chance shelter as they can find, or else to suffer the torment of unanswered demands, to say nothing of the risk of permanent and irreparable mischief.

Here, too, we would put in a protest against the error too often fallen into by teachers of refusing requests to leave the school room. A recent writer in a health journal speaks so well upon this point that we quote without apology: "If a pupil desires to be excused from the school room, the teacher should be absolutely certain that his physical necessities do not demand his absence, before refusing the indulgence. A teacher has no right whatever to refuse such a request, unless he knows absolutely that the case is one of truancy; if he err at all, let it be on the safe side; better thus to err a hundred times than once to be the cause of physical injury." And what Herbert Spencer has said of another matter will apply with equal force to this: "Has the teacher any secret understanding with the child's body — any *clairvoyant* power enabling him to see all its needs with exactness and precision? If



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not, how can he safely decide? Does he not know that the demands of the system are determined by numerous and involved causes, and how can he calculate the result of such a combination?"

#### WATER SUPPLY.

It is hardly credible, but is none the less true, that the greater part of our schools have no source of water supply of their own, but are compelled, as one of the teachers reports, to rely on "patient and long suffering neighbors." More than sixty-one per cent. of our schools are in this predicament, and this is not the worst feature, for in more than fifteen per cent. of these, water must be brought from distances ranging from one-fourth to three-fourths miles. Such facts do not speak well for the people of a district of which they are told. We learn, moreover, that water in one instance is obtained "in summer from an adjoining marsh, at other seasons from a well distant one-half mile; a single pailful brought in the morning forming the day's supply." Again, it is drawn from "a creek which flows through two barnyards before reaching the school. — From a well in the valley below which receives all the drainage of the barn yards. — From a well dug in a side hill below the privies. — From a driven well in the basement of the school, the *only possible contamination of which is from filtration from the privies.*" Our narrowing space warns us to stop, but the material for quotation upon this point is far from being exhausted. Enough has been said, however, to show that the note of warning sounded by Dr. Witter in the last report, was by no means premature or needless.

With regard to one of the remaining points that fall into our province for discussion, that of the effect of the advent of puberty, opinion seems to be too widely divided to admit of any satisfactory conclusion. The most experienced of the many experienced educators with whom we have been in correspondence, appear to incline to the belief that if proper caution be exercised there is very little increase of danger at that epoch. Still most of them speak with caution, and it is perhaps too much to say that a majority hold that view.

Upon the question, "How can physical conditions be improved,"

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we have received a mass of opinions, very many of which are worthy of careful consideration. They may be classified to a certain extent, and when this is done the following appears to represent the paths which must be pursued to attain the end. Better ventilation, better school buildings, better furniture, more out door exercise, improved heating arrangements, greater attention to cleanliness of person, gymnastic and calisthenic exercises, better lighted school rooms, more care as to food and diet, proper attention to clothing, and shorter school sessions. These are named in the order of their importance, as indicated by the number of those who recommend them.

Some there are who think that the physical conditions of the children in our common schools are not susceptible of improvement; that the point of perfection is already attained; but these are few. Yet others think that by putting on a greater pressure, by giving less time to recreation and play, that good results may be reached, one of this class urging the improvement of physical condition "by gymnastic exercise in school, and by parents seeing to it that as soon as children return home from school they shall be set to work at hard labor of a useful kind!" Those whom this gentleman represents are also in a decided minority. Several suggest that proper instruction in the laws of physiology and hygiene be given to parents by means of popular lectures, to teachers at institutes, and to children by means of general exercises in the school room. The opinion that a change in the law is desirable, making the school age begin at six or seven years of age instead of four, finds quite frequent expression, as also does that of "doing away, partially, at all events, with the high-pressure *stuffing* system, now so much in vogue, by which a child is called upon to learn so much in a given time, regardless of natural capabilities."

We regret greatly that we can give no further quotations from the many replies to the questions on physical improvement, but their general scope is pretty clearly indicated in those already presented. There are other special replies of marked interest and value, which, however, our space compels us to omit.

There is yet a question of a high degree of importance to be

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considered, and with its discussion we shall bring our present labor to an end; it is that of the means employed for

THE PREVENTION OF CONTAGIOUS DISEASE.

These means might briefly be disposed of by saying that, practically, there are none. It is true that we find many such reports as these: "Contagious diseases are met by the use of disinfectants, by suspension from school, and by closing school.—The board have rules to prevent admission of pupils from infected families;" but in the vast majority of cases nothing whatever is done.

"Pupils who have been exposed to contagious diseases are sometimes kept at home; others have been sent home *after such a disease has made its appearance*, but people generally show great indifference to any matter of the kind.—No means whatever are employed to prevent the spread of contagious diseases; children having them are allowed to come to school as freely as others.—Contagious diseases are not combated by any systematic proceedings; many cases of scarlet fever and diphtheria now exist in this neighborhood, but fortunately none have as yet appeared in the school." Such are some of the answers returned to the inquiry concerning the restriction of diseases, many of which are known to be preventible by isolation. The results of this deplorable want of caution are shown in such quotations as the following: "No means are used to prevent the spread of contagious disease. Diphtheria has raged fearfully in this neighborhood during this spring ('79), and the *doctors had no success in preventing its spread*.—Diphtheria appeared in this district in December, 1878, and took off ten scholars; the winter term was soon broken up for want of pupils. At this date the summer term has just commenced, but diphtheria still prevails."

Strange to say, there are those who, in the face of these and other well established facts to be more particularly mentioned hereafter, use such language as this: "I think that the clamor that is raised against the schools as sources of infection is simply peopling the graveyard. Whenever contagious diseases prevail, hundreds of children from non-infected houses are withdrawn from school,



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only to congregate with children from tainted houses on the skating ponds and play-grounds."

That a teacher of large experience, a gentleman of more than usual intelligence and high education, can speak thus, is an additional evidence of the need for popular instruction that prevails. Few facts are better established than that the danger of contracting any contagious disease is greatly diminished by diluting the poison, whatever be its character, that produces it; certainly the risk of contagion in the open air, upon skating ponds, etc., is infinitesimal as compared with that incurred in overcrowded, badly ventilated school rooms. Physicians well know, moreover, that the opening of the schools in autumn is too often the signal for outbreaks of scarlet fever, measles, whooping cough, diphtheria, etc., among the children who attend them, and evidence of the same fact is contained in the records of the State Board of Health.

We are well aware of the difficulties which must be overcome in solving the problem of how best to meet the dangers of contagion in the school room. We know, however, that these difficulties have been met in many places, and that there is nothing in the way of their solution which cannot be overcome in Wisconsin as well as elsewhere. In the few attempts that are made to prevent the sick from mingling with the well, failure often results from the fact that no competent authority is charged with the duty of making and enforcing the needed regulations. These should be simple, comprising the absolute exclusion of not only those affected with contagious disease, but of all from the same family and the same house, for a length of time sufficient to insure their schoolmates from danger, and a thorough disinfection of the person \* and clothing prior to re-admission. Inasmuch as teachers and members of districts boards have very seldom the knowledge requisite for carrying out these precautions, their execution should be placed in the hands of a competent physician, who should by preference be the health officer of the district. Something very much like this has

\* In the disinfection of the person, the hairy scalp is frequently overlooked; the whole body is bathed and thoroughly cleansed, but the head receives little, if any, attention. A child may easily scatter the germs of disease widely among his school fellows in consequence of this neglect.

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been done in the city of Rochester, N. Y., where the difficulty and cost of such measures must be enormously greater than they can be in smaller communities, with the most gratifying results.

We have desired in this paper to call attention to some of the most conspicuous of the evils that surround the public school system of our state, no one of which, however, is inherent to that system. "No subject can be of greater importance to the state, or of more vital and anxious interest to every family in it," than the health of the children to whose hands every interest of the state must soon be committed. Much of the injury that is sometimes attributed to school life and school work is doubtless due to thin-soled shoes, tight corsets, late parties and exciting novels; it is also true that "many over-eat, over-party, and under-sleep;" but when everything is said, when all deductions are made that are justly chargeable to other scores, a large residue will be apparent for which the faults of school are responsible.

We do not look for perfection, but we have a right to demand that such blots on our school system as are some of the buildings described in reports in our possession, shall be done away with; that school houses which measure "twelve by twelve feet, with three small windows, and the same number of rough benches, one on each of three sides of the room, with no outhouses of any kind, and with no source of water supply within half a mile,"\* shall not be considered proper places in which to instruct our children.

"The schools of our state are an incalculable blessing to the state and to every citizen. IT IS BECAUSE THEY ARE SO PRECIOUS THAT IT IS WORTH OUR WHILE TO SCRUTINIZE THEM CLOSELY AND NEVER TO CEASE OUR EFFORTS TO IMPROVE THEM."†

\*The above is taken from the report of a correspondent in one of the wealthiest counties of the state, who says: "There are several school houses in this county as bad as this. I mention the fact because you will probably receive no report from any of those districts." His opinion was correct; we did not.

†Dr. Fred. Winsor, in 5th Mass. Report.







